

ZASUKHA, P.F., kand.tekhn.nauk; LAZUTIN, A.G., inzh.; ZAVERYUKHA, A.Kh.,  
inzh.; VOLEGOV, V.P., inzh.; FRANTSENYUK, I.V., inzh.

Selection of an efficient type of sheet rolling mill. Stal' 21  
no.12:1090-1092 D '61. (MIRA 14:12)

1. Ural'skiy nauchno-issledovatel'skiy institut chernykh metallov  
i Novolipetskiy metallurgicheskiy zavod.  
(Rolling mills)

ZAVERYUKHA, N.V., inzhener; VOLKOV, L.A., inzhener.

Work organization in the pouring bay of an open-hearth plant. Metallurg  
(MLRA 9:9)  
no.6:23-25 Jo '56.

1. Zamestitel' nachal'nika martenevskogo tsokha No.1 (for Zaveryukha).
2. Nachal'nik issledovatel'skogo sektora OOT (for Volkov).
3. Magnitogorskii metallurgicheskii kombinat.  
(Open-hearth process)

PHASE I BOOK EXPLOITATION

SOV/3942

Zaveryukha, Nikita Vasil'yevich, Engineer, Abdrashit Museyevich Bigeyev, Candidate of Technical Sciences, Leonid Andreyevich Volkov, Engineer, and Aleksey Andreyevich Bezdeneshnykh, Candidate of Technical Sciences

Razlivka stali v sovremennykh martenovskikh tsekhakh (Teeming of Steel in Modern Open-Hearth Furnace Plants) Sverdlovsk, Metallurgizdat, Sverdlovskoye otd-niye, 1959. 215 p. Errata slip inserted. 2,800 copies printed.

Ed.: M.I. Panfilov; Ed. of Publishing House: N.N. Tsymbalist; Tech. Ed.: R.M. Matlyuk.

**PURPOSE:** This book is intended for technical personnel of open-hearth furnace plants in the metallurgical and machine industries. It may also be useful to students of tekhnikams and schools of higher technical education.

**COVERAGE:** The book reviews problems connected with the crystallization theory, the structure of ingots and ingot defects, their causes, and preventive measures. Modern methods of steel teeming are reviewed in detail, and equipment used at open-hearth plants is described. Work organization, automation and mechanization of certain processes, and safety measures are outlined. The following engineers

Card 1/4

Teeming of Steel in Modern Open-Hearth Furnace Plants

80V/3942

took part in the writing of the book: H.I. Lopukhov, V.M. Kalashnikov, and I.S. Tkachev. The authors also thank D.P. Strugovshchikov, Engineer, N.F. Dubrov, Candidate of Technical Sciences, A.N. Morozov, Doctor of Technical Sciences, and M.I. Panfilov, Engineer, for their assistance. There are 48 references: 42 Soviet (including one translation), 4 German, and 2 English.

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Card 2/4

ZAVERYUKHA, Nikita Vasil'yevna, inzh.; BIGEYEV, Abdreshit Museyevich,  
kand.tekhn.nauk; VOLKOV, Leonid Andreyevich, inzh.; BEZDE-  
NEZHNYKH, Aleksey Andreyevich, kand.tekhn.nauk; PANFILOV, M.I.,  
inzh., red.; TSYMBALIST, N.N., red.isd-va; MATLYUK, R.M.,  
tekhn.red.

[Steel pouring in modern open-hearth furnace plants] Razlivka  
stali v sovremennykh martenovskikh tsekhakh. Sverdlovsk, Gos.  
nauchno-tekhn.isd-vo lit-ry po chernoi i tsvetnoi metallurgii.  
Sverdlovskoe otd-nie, 1959. 215 p. (MIRA 13:3)  
(Open-hearth process) (Steel castings)

ZAVERYUKHA, V. (Major)

"Training Requirements of Fighter-Pilots," representing a summary of the article  
"Against Formalism and Oversimplification of Pilots Training," Vest. Vozd. Flota, No.9,  
pp 29-33, 1954.

D 241652, 25 May 55

ZAVERYUKHA, V.

AID P - 409

Subject : USSR/Aeronautics

Card 1/1 Pub. 135, 5/17

Author : Zaveryukha, V., Major

Title : Against routine and simplification in pilot training

Periodical : Vest. vozd. flota, 9, 29-33, S 1954

Abstract : The author stresses the necessity of revision of training standards for pilots in view of the increases in speed and altitude of flight due to jet propulsion. Examples are given, and names of officers mentioned.

Institution : None

Submitted : No date

AUTHOR: Volkov, L.A. and Zaveryukha, N.V., Engineers at the Magnitogorsk Metallurgical Combine. 247

TITLE: Steel teeming ladles and their use. (Staleraslivochnye kovshi i ikh ekspluatatsiya.)

PERIODICAL: "Metallurg" (Metallurgist),  
1957, No. 1, pp. 37 - 39, (U.S.S.R.)

ABSTRACT: The inter-works school on steel teeming have compared ladle design at different works and made recommendations. They suggest that, in view of the satisfactory operation of Zaporozhstal teeming ladles with 15 tons less metalwork than the 40 tons of the standard design, there is room for improvement. Stopper mechanisms and tilting devices developed at Magnitogorsk (described in some detail) should become universal. There was no standardisation of spout arrangement, some works having two and others one per ladle, and there were differences in nozzle practice. For relining and preparing ladles, Magnitogorsk practice (described in detail) was found to require 35 min. of crane time per ladle, whereas, at Novo Tagil, the figure was 75. The school recommend that all works should follow a strict time schedule for ladle inspection and maintenance and that all stopper mechanisms should have the handle on the "cold" side.  
1 photo and 1 sketch.



SA PZ  
ZAVESA, P.Z.

Cases of congenital shoulder dislocation. Ortop., travn. i protes.  
(MLRA 8:10)  
no.4:59-62 J1-Ag '55.

1. Iz ortopedicheskogo otdeleniya (sav.- P.A.Tsarevskaya) Rostov-  
skoy n/D gorbol'nitsy (glavnyy vrach A.S.Barash'yan)  
(SHOULDER, dislocations,  
congen.)  
(DISLOCATIONS,  
shoulder, congen.)

ZAVESA, P.Z.

Fracture of the radius in a typical area spot, complicated by injury of the distal radioulnar articulation. Ortop.travm. i protez. (MLRA 10:2)  
17 no.6:109 N-D '56.

1. Iz ortopedicheskogo otdeleniya (zaveduyushchiy - P.A.TSarevskaya)  
Rostovskoy-na-Donu gorodskoy bol'nitsy No.4 (glavnyy vrach - A.S.  
Barash'yan)  
(RADIUS--FRACTURE)

ZAVESA, P. Z. Cand Med Sci -- (diss) "Fractures of the radius <sup>ata</sup> ~~is~~ typical  
~~Dislocation~~  
~~placed~~, complicated by injury of the lower radio-uncoual joint, and their  
treatment." Rostov-on-Don, 1958. 19 pp (Rostov-on-Don State Med Inst), 200  
copies (KL, 14-58, 117)

ZAVESA, P.Z.

Injuries of the bursoligamental apparatus of the lower radioulnar joint  
in athletes. Ortop. travm. protez., Moskva 19 no,6:21-25 H-D '58.  
(MIRA 12:1)

1. Iz Rostovskogo-na-Donu gorodskogo vrachebno-fizkul'turnogo dispansera  
(glavnyy vrach - M.G. Zak).

(FOREARM, wds. & inj.

burso-ligamental appar. of lower radioulnar articulation in  
athletes (Rus))

(ATHLETICS, wds. & inj.  
same)

ZAVESA, P<sup>12</sup><sub>1</sub>, Cand Med Sci -- (diss) "Fractures of the radius<sup>tu</sup>  
in a typical spot complicate<sup>d</sup> by damage to the <sup>^^</sup> lower radio-ulnar joint and  
their treatment." Stalino, 1959, 18 pp (Stalino State Med Inst in  
A.M. Gor'kiy) 220 copies (KL, 35-59, 116)

ZAVESA, P.Z., kand.med.nauk

Treatment of humeroscapular periarthritis with oxygen insufflation.  
Ortop.travm.i protez. 21 no.3:36-38 Mr '60. (MIRA 14:3)

1. Iz ortopedicheskogo otdeleniya gorodskoy bol'nitsy No.4 (glavnyy  
vrach - A.S.Barash'yan) i Rostovskogo-na-Donu gorodskogo vrachebno-  
fizkul'turnogo dispansera (glavnyy vrach - M.G.Zak).  
(ARTHRITIS) (OXYGEN THERAPY)

ZAVESA, P.Z., kand.med.nauk (Rostov-na-Donu, ul.Shaumyana, d.119, kv. 26)

Oxygen therapy in arthrosis deformans and sequelae of internal injuries of the knee joint abstract. Ortop. travm.i protez. 22 no.1:81-82 Ja.'61. (MIRA 14:5)

1. Iz ortopedicheskogo otdeleniya (zav. - P.A.TSarevskaya) Rostovskoy-na-Donu gorodskoy bol'nitsy No.4 (glavnyy vrach - A.S.Barash'yan).  
(KNEE--WOUNDS AND INJURIES)  
(OXYGEN THERAPY)

ZAVESA, P. Z.

Treatment of traumatic dislocations of the tibia. Ortop., travm. 1  
protez. 22 no.8:81 Ag '61. (MIRA 14:12)

(TIBIA—DISLOCATION)



ZAVESA, P.Z., kand. med. nauk

Abstracts. Ortop., trvam. i protez. 26 no.3:67 Mr '65.  
(MIRA 18:7)

1. Iz Uzbekskogo instituta travmatologii i ortopedii (dir. -  
kand. med. nauk B.A.Akhundzhanov). Adres avtora: Samarkand,  
Kommunisticheskaya ul., d.35, Meditsinskiy institut, kafedra  
travmatologii i ortopedii.

ZAVESIN, I. S. and BELOKUP, V. M.

"Fixation of blood smears with carbolic acid solution."

SO: Vet. 27 (7) 1950, p. 58

ZAVESKY, MILOSLAV

Lisovací nástroje v praxi; práce a konstrukce nástrojů k hromadné výrobě středních lisovaných součástí. [Vyd. 1.] Praha, Prace; Vydavatelstvo ROH, 1952. 387 p. (Technické příručky Prace, sv. 113) [The operation of machine presses; the work and design of tools used in the mass production of medium-sized stamped parts. illus., diagrs.]

SO: Monthly List of East European Accessions, Vol 3 No 3 Library of Congress Mar 54 Uncl

"APPROVED FOR RELEASE: 03/15/2001

CIA-RDP86-00513R001964010009-1

APPROVED FOR RELEASE: 03/15/2001

CIA-RDP86-00513R001964010009-1"

briefly dealt with in this article, but some of the

ZAVESKY, M.

Stopping by filling the chambers excavated between levels in the Krusna Hora Mine. p. 132. RUDY. (Ministerstvo hutního průmyslu a rudných dolů) Praha. Vol. 4, no. 5, May 1956.

ZAVESKY VACLAV

CZECHOSLOVAKIA/Chemical Technology. Chemical Products and Their I-8  
Application. Ceramics. Glass. Binders. Concrete.

Abs Jour : Ref Zhur-Khimiya, No 2, 1958, 5351.

Author : Viktora Eugen, Zavesky Vaclav.

Inst : Not Given.

Title : Refractory Lining of Tubular Furnaces.

Orig Pub : Hutnicke listy, 1957, 12, No5, 417-423

Abstract : Consideration of questions pertaining to stability of refractory lining (RL) of rotary furnaces for a direct production of Fe from ore. In view of the composition of the slag of this process it is recommended to utilize for RL primarily the semi-acidic refractories containing over 72% SiO<sub>2</sub>; in addition, good results have

Card : 1/2

ZAVESKY, V.; VIKTORA, E.

Refractory linings of rotary furnaces for the blooming process. p. 417.  
(Hutnicke Listy, Vol. 12, No. 5, May 1957, Brno, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, No. 8, Aug 1957. Uncl.

ZAVESKY, VACLAV

CZECHOSLOVAKIA/Chemical Technology. Chemical Products and Their I-9  
Application - Silicates. Glass. Ceramics. Binders.

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 12614

Author : Zavesky Vaclav  
Title : ~~The Problem of Testing~~ Discussion and Evaluation of  
Quality of Refractory Ceramic Materials Used in  
Metallurgy

Orig Pub : Problema zkouseni, posuzovania hodnoceni jakosti zarovzdor-  
nych keramickych staviv pro hutnicke ucely. Hutnicke listy  
1956, 11, No 4, 257-265 (Czech; Russian, German, English  
and French summaries)

Abstract : Review and detailed comparison of Czechoslovak, Soviet  
and American methods for testing the properties of re-  
fractory materials (RM) used in metallurgy, namely:  
outward appearance, deviations in size, structure, re-  
fractoriness, chemical composition, volumetric and speci-  
fic weight, porosity, deformation under stress at high

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CZECHOSLOVAKIA/Chemical Technology. Chemical Products and Their I-9  
Application - Silicates. Glass. Ceramics. Binders.

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 12614

temperature,  $\sigma$  crit, compres, additional shrinkage, thermal stability (Czechoslovak Standard CSN 1291-1938).  
A comparison is made of the classification of chamotte and high alumina (diasporore-containing) RM according to ASTM(USA) and CSN-1921-1944, standards, and data are presented on determination of properties of USA RM according to ASTM and CSN standards. Outlined are ways of improving testing procedures for RM in Czechoslovakia.

Card 2/2

- 89 -

ZAVETA, KRAEL

CZECHOSLOVAKIA / Magnetism. Ferromagnetism.

F-4

Abs Jour : Ref Zhur - Fizika, No 3, 1957, 6850

Author : Zavata, Krael  
Inst : Karlovy University, Prague, Czechoslovakia  
Title : Magnetization Curves of Thin Layers of Iron

Orig Pub : Ceskosl. casop. fys., 1956, 6, No 3, 303 - 312

Abstract : The magnetization curves of thin layers of iron measuring from 125 to 7,870 Å and obtained by evaporation in vacuum have been measured. A torsion magnetometer was used for the measurements. The curves showing the magnetization work and the corresponding residual magnetization vs. the thickness display an anomaly in the 1,100 Å thickness range. It was shown by weighing that the density of the layer is less than the density of the metal.

Card : 1/1

CZECHOSLOVAKIA/Magnetism - Ferrites and Ferrimagnetism.

Abs Jour : Ref Zhur - Fizika, No 6, 1959, 13239

Author : Baoz, J., Bergstein, A., Krupicka, S., Vintera, J.,  
Zaveta, K.

Inst : Institute of Technical Physics, Czechoslovak Academy of  
Sciences, Prague, Czechoslovakia

Title : Influence of the Method of Preparation on Certain Magne-  
tic Properties of Manganese-Zinc Ferrite.

Orig Pub : Chekhosl. fiz. zh., 1957, 7, No 1, 66-79.

Abstract : The authors have investigated the influence of temperature  
and the annealing temperature on the magnetic properties  
of manganese-zinc ferrites with an excess of manganese.  
It was possible to correlate the magnetic properties with  
the structure and chemical composition of the specimens.

Card 1/1

CZECHOSLOVAKIA/Magnetism - Ferrites and Ferrimagnetism.

Abs Jour : Ref Zhur -Fizika, No 6, 1959, 13243

Author : Broz, Jaromir; Zaveta, Karel

Inst :

Title : Concerning the Problem of the Study of the Temperature  
Dependence of Saturation Magnetization of Manganese-  
Zinc Ferrites.

Orig Pub : Ceskosl. casop. fys., 1957, 7, No 2, 217-219

Abstract : See Referat Zhur Fizika, 1958, No 1, 1174.

Card 1/1

*ZAVETA, K.*  
CZECHOSLOVAKIA/Magnetism - Ferrites and Ferrimagnetism

F-4

Abs Jour : Ref Zhur - Fizika, No 1, 1958, 1174

Author : Broz Jaromir, Zaveta Karel

Inst : Institute of Technical Physics, Czechoslovak Academy of Sciences, Prague.

Title : Contribution to the Study of the Temperature Dependence of Magnetic Saturation of Manganese-Zinc Ferrites.

Orig Pub : Chekhosl. fiz. zh., 1957, 7, No 2, 242-244

Abstract : In order to confirm the premises, set forth by the authors earlier, a study was made of the temperature dependence of the saturation magnetization of almost-stoichiometric Mn-Zn ferrites with a small excess of Mn. In accordance with these assumptions, it was established that the different modes and the atmosphere of the preliminary and final sintering lead to two types of dependences of the

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CZECHOSLOVAKIA/Magnetism - Ferrites and Ferrimagnetism

F-4

Abs Jour : Ref Zhur - Fizika, No 1, 1958, 1174

magnetization of saturation on the temperature.  
One of the types of these dependences leads to a values  
 $I_s(0) \sim 6.5 \times 10^5$  B. This value is in good agreement with  
the theoretical value of the magnetic moment for the fer-  
rite  $Mn_{0.5}Zn_{0.5}Fe_2O_4$ , in which the excess Mn is present  
in the form of Hausmanite  $Mn_3O_4$ , and with measurement  
data obtained by other investigators.

Card 2/2

ZAVETA, K.

Contribution to the study on thermal dependence of saturated magnetization in manganese zinc ferrites.

P. 217 (Československá Morfologie. Vol. 5, no. 4, 1957 Praha, Czechoslovakia)

Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 2, February 1958

ZÁVĚTA K.

The distribution of ions and their valencies in manganese ferrites? I.  $MnFe_{2-x}O_{4+y}$  ferrites. Svatopluk Krupička and Karel Závěta. Czechoslov. J. Phys. 9, 331-341 (1959) (in English).—A model for the distribution of cations in the spinel lattice of Mn ferrites,  $MnFe_{2-x}O_{4+y}$ , is presented on the basis of the exptl. studies of the basic magnetic quantities, elec. conductivity, and magnetic relaxation of the given ferrites, taking into consideration their crystallographic properties. The conclusions following from this model are in good agreement with the exptl. results obtained by us and by other authors both for stoichiometric Mn ferrite and for a ferrite where  $y \neq 0$ . 18 references. A. Kremineller—

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CZECHOSLOVAKIA/Magnetism - Experimental Methods of Magnetism.

F

Abs Jour : Ref Zhur Fizika, No 12, 1959, 27533  
Author : Zaveta, Karel  
Inst : -  
Title : New Methods of Measuring the Magnetocaloric Effect  
in Ferromagnetic Semiconductors  
Orig Pub : Ceskosl. casop. fys., 1958, 8, No 5, 599-601  
Abstract : See Abstract 27532

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- 61 -

CZ/37-58-5-11/19

AUTHOR: Závěta, Karel

TITLE: A New Method for the Measurement of the Magneto-Caloric Effect in Ferromagnetic Semiconductors  
(Nová metoda měření magnetokalorického efektu u ferromagnetických polovodičů)

PERIODICAL: Československý Časopis pro Fysiku, 1958, Nr 5, pp 599-601 (Czech)

ABSTRACT: The magneto-caloric effect is the change of temperature of a ferromagnetic material caused by rapid (adiabatic) magnetization. Weiss and Forrer (Ref 2) have found a change of temperature  $\Delta T$  of 1°C as nickel was magnetized in a field of 10-20 K Oe. They measured the temperature with a thermocouple. As Clark and Sucksmith (Ref 4) have shown, it is very difficult to apply this method to semiconductors. Ferromagnetic semiconductors show a strong change of resistivity with temperature. The magneto-caloric effect can be determined from measurements of resistivity, provided we deduct the change of resistivity with isothermal magnetization. The new method was used on a cylindrical sample (d=8.6 mm, l=15.5 mm) of manganous ferrite (composition:  $\text{MnOFe}_2\text{O}_3 + 0.08 \text{Mn}_3\text{O}_4 + 0.055 \text{O}$  Ref.5). The sample was held

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CZ/37-58-5-11/19

A New Method for the Measurement of the Magneto-Caloric Effect  
in Ferromagnetic Semiconductors

between two electrodes, one of which contained a thermocouple, inside a furnace. The furnace with the sample was placed in a magnetic field of 5500 Oe perpendicular to the axis of the sample. The resistance was measured with a Wheatstone bridge. The measured magneto-caloric effect is plotted as a function of temperature in Fig.2. The effect has a maximum at the Curie temperature. The advantage of the described method is mainly that it uses an effect throughout the bulk of the material, rather than limiting itself to a single point in the material as the measurement with a thermocouple. If the material under investigation is a poor thermal conductor, a thermocouple also introduces errors by its own thermal conductivity. Drs. J. Brož, S. Krupička and J. Šternberk made helpful suggestions.

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CZ/37-58-5-11/19

A New Method for the Measurement of the Magneto-Caloric Effect  
in Ferromagnetic Semiconductors

There are 2 figures and 7 references, 2 of which are  
Czech, 1 Russian, 3 English, 1 French.

ASSOCIATION: Ústav technické fyziky ČSAV, Praha (Institute for  
Technical Physics, Czech Ac.Sc., Prague)

SUBMITTED: March 19, 1958

Card 3/3



4  
1-1A5-104

The distribution of ions and their valencies in manganese ferrites. H. Mäkelä, Fe., O., ferrites J. Brož, S. Krupicka, and E. Lavieš (Czechoslovak Acad. Sci. Prague) Czechoslovak J. Phys. 10, 1001 (1965) Eng. transl. of CA 53, 21017 -- The influence of the oxygen content on the satn. of the magnetic moment and the Curie temp. was studied exptl. on nonstoichiometric Mn ferrites having a varying excess of Mn. With consideration of the results of studying the elec. cond. and magnetic relaxation effects, a model was developed for the distribution of ions in these ferrites, which starts out from the distribution of ions in stoichiometric Mn ferrite. The exptl. results obtained by these and other authors justify this model.

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**APPROVED FOR RELEASE: 03/15/2001**

**CIA-RDP86-00513R001964010009-1"**

S/181/60/002/01/23/035  
B008/B014

24.2200

AUTHOR: Zaveta, K.

TITLE: Measurement of Galvanometric Properties<sup>21</sup> of Ferrites<sup>21</sup>

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 1, pp. 106-108

TEXT: In measuring galvanometric properties of polycrystalline and mono-crystalline manganese ferrites K. P. Belov and his co-workers (Refs. 1 and 2) detected an anomaly of the temperature dependence of the relative variation of the electrical resistance  $\left(\frac{\Delta R}{R}\right)$  in the range of the Curie point. This statement, which contradicts Parker's data (Ref. 4), was checked by the author.  $\left(\frac{\Delta R}{R}\right)_{T \rightarrow 0}$  is represented as a function of H (Curve a) and  $H^{2/3}$  (Curve b) (T - absolute temperature; H - magnetic field) (Fig.). This dependence was derived from data supplied by K. P. Belov and Ye. V. Talalayeva for polycrystalline manganese ferrite (Ref. 1). The course taken by these curves indicates the adiabatic nature of the change in resistivity measured by the above-mentioned authors. The

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Measurement of Galvanometric  
Properties of Ferrites

81237  
S/181/60/002/01/23/035  
B008/B014

anomalous temperature course of  $\left(\frac{\Delta R}{R}\right)$  found in the range of the Curie point may be ascribed to a magnetocaloric effect. The author thanks I. Shternberk for his discussion. There are 1 figure and 8 references, 3 of which are Soviet.

ASSOCIATION: Chekhoslovatskaya Akademiya nauk (Czechoslovakian Academy of Sciences). Institut tekhnicheskoy fiziki, Praga  
(Institute of Technical Physics, Prague)

SUBMITTED: April 14, 1959

4

Card 2/2

Z/037/60/000/02/009/018

E073/E335

AUTHOR: Závěta, Karel

TITLE: Electrical Properties of Ferrites with Spinel Structure

PERIODICAL: Československý časopis pro fyziku, 1960, Nr 2,  
pp 147 - 161

ABSTRACT: In this paper the results are reviewed and interpreted of investigations of the electrical conductivity in ferrites based on published information, including published and unpublished work of the author (a total of 83 references). In the introduction, Chapter 1 (pp 148-150) some crystallographic concepts are defined and the basic magnetic properties of the ferrites are summarised. Chapter 2 (pp 150 - 154) deals with the electrical properties of ferrites in DC fields (temperature dependence of the DC conductivity, electrical conductivity in the neighbourhood of the Curie point). The electrical properties of magnetite are discussed in detail since they form the basis for interpretation of the mechanism of conductivity of most ferrites. Chapter 3 (pp 154 - 156) deals very briefly with the electrical properties of ferrites in AC fields, describing in the first instance measured frequency-

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Z/037/60/000/02/009/018

E073/E335

Electrical Properties of Ferrites with Spinel Structure

dependence of the electric conductivity and of the dielectric constant. Chapter 4 (pp 156 - 159) concerns special problems of the electric conductivity in ferrites. In discussing ferrites containing manganese the author also mentions Ni-Zn ferrites, in which the change of valency probably takes place between ions other than those of bivalent and trivalent iron. In the latter part of this chapter the methods are briefly summarised which lead to a reduction in the conductivity, which is highly desirable in ferrites for microwave applications. In the conclusions, the author emphasises that the basic condition for investigation of the electrical properties is the availability of accurately defined systems of equations with a single variable parameter. Therefore, it is necessary to devote in future even more attention to the study of ferrite single crystals in which many difficulties can be obviated which occur in non-homogeneous structures of polycrystalline ferrites produced by ordinary ceramic methods. Furthermore, thermo-electric and magneto-electric studies have to be

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Z/037/60/000/02/009/018

E073/E335

Electrical Properties of Ferrites with Spinel Structure

extended considerably. Acknowledgments are expressed to Professor Doctor J. Brož and Doctor S. Krupička for their comments on this review paper. There are 83 references, of which 13 are Czech, 4 are German, 2 Swiss, 6 Soviet, 2 French and 56 English.

ASSOCIATION: Ústav technické fyziky ČSAV,  
(Institute of Technical Physics, ČSAV)

SUBMITTED: February 13, 1959

Card3/3

20791

9.4300 (1137, 1147, 1155)

S/181/61/003/003/020/030  
B102/B205

AUTHOR: Zaveta, K.

TITLE: Galvanomagnetic effect in ferrites near the Curie point

PERIODICAL: Fizika tverdogo tela, v. 3, no. 3, 1961, 856-860

TEXT: In a previous paper (Ref. 1: FTT, II, 106, 1960), the author has pointed out that measurement of the galvanomagnetic effect in ferrites near the Curie point is cumbersome because the maximum of the magnetocaloric effect lies in this range of temperatures. An attempt has now been made to solve several problems related to the adiabatic and isothermal galvanomagnetic effects with the help of new experimental material. Theoretically, these problems have already been treated by K. P. Belov et al. (FTT, III, no. 2, 1961). In the first part of the present paper, the author discusses the theoretically formulated relationships between the electrical resistance, the external magnetic field, and the activation energy  $\epsilon(H)$  with reference to results published by Belov, Belov and G. A. Zaytseva, as well as V. L. Ginzburg. After several calculations and considerations, the following relation is obtained for the relationship between magnetic field and magnetization at the Curie point  $\theta$  in accordance with the results of Belov:

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20794

S/181/61/003/003/020/030  
B102/B205

Galvanomagnetic effect ...

$$\left(\frac{\Delta R}{R}\right)_M = -\frac{\epsilon}{kT^2} (\Delta T)_S = b_M H^{2/3} \text{ and } \left(\frac{\Delta R}{R}\right)_S = b_T H^{2/3} + b_M H^{2/3}.$$

$b_T$  and  $b_M$  are material constants which cannot be determined theoretically, not even relatively. The experimental values obtained by Belov deviated considerably from those found by the present author. Measurements of the galvanomagnetic properties of manganese-zinc ferrites near the Curie point in fields of 3-10 oe, carried out by the present author, have shown that formula (6) is correct. This was found to hold for both the adiabatic and the isothermal, longitudinal, galvanomagnetic effect. A discussion of the measurement of galvanomagnetic effects in ferrites near  $\Theta$  has shown that the activation energy of the electrical conductivity is independent of the magnetic field. Thus, the measurement of resistivity can be divided into a part corresponding to isothermal variations of the field and a part corresponding to the temperature variations which depend, not on the procedure, but only on the initial and final states. Both the isothermal and the adiabatic galvanomagnetic effect are linear functions of  $H^{2/3}$ . It could be further shown that the change in resistivity due to a magnetocaloric rise of temperature for polycrystalline manganese-zinc ferrites is

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S/181/61/003/003/020/030  
B102/B205

Galvanomagnetic effect ...

about as great as the longitudinal, isothermal, galvanomagnetic effect.  
Ye. V. Talalayeva is mentioned. There are 2 figures and 12 references:  
9 Soviet-bloc and 3 non-Soviet-bloc.

ASSOCIATION: Chekhosovatskaya Akademiya nauk Institut tekhnicheskoy fiziki  
Praga (Czechoslovakian Academy of Sciences, Institute of  
Technical Physics, Prague)

SUBMITTED: July 25, 1960

Card 3/3

14.2100

P/019/61/010/001/006/006  
D265/D305

AUTHORS: Zitka, E., Zavřetá, K., and Lachowicz, H.

TITLE: Contribution to investigation on the mechanism of magnetization reversal in ferrites

PERIODICAL: Archiwum elektrotechniki, v. 10, no. 1, 1961, 281-294

TEXT: This paper provides an analysis of the experimental results carried out on a toroidal core made of the ferrite of type  $\text{Mn}_{0.556}$

$\text{Mg}_{0.608}\text{Fe}_{1.845}\text{O}_4$ . The method was based on plotting the family of hysteresis loops for the material by taking the static measurements carried out by ballistic method and then subjecting the core to a pulsating magnetic field. The precautions taken during the experiments, and the methods of obtaining the results which are then analyzed are described. It is concluded that the hysteresis loops obtained under dynamic magnetization conditions are wider and more rectangular than the static ones; the switching time depends on the field strength and the initial magnetic state of the material

Card 1/2



Contribution to investigation on ...

P/019/61/010/001/006/006  
D265/D305

and the subsequent flux density. The authors announce further research into the coercive force region of the hysteresis loop for various ferrites used in mathematical computer application. There are 11 figures and 2 references: 1 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: N. Menyuk, J.B. Goodenough, J. Appl. Phys., 26, 8, 1955. R

ASSOCIATION: Ústav technické fyziky ČSAV - Praha (Technical Physics Institute, Czechoslovak AS - Prague) (B. Zitka, K. Zavřeta); IPPT PAN (IPPT PAS) (H. Lachowicz)

SUBMITTED: March 18, 1960

Card 2/2

ZAVETA, K.

Galvanomagnetic effect in ferrites in the region of the Curie point.  
Fiz. tver. tela 3 no. 3:856-860 Mr '61. (MIRA 14:5)

1. Chekhoslovatskaya Akademiya nauk Institut tekhnicheskoy fiziki,  
Praga.

(Magnetic fields) (Ferrates)

24,7900

S/196/62/000/010/007/035  
E073/E155

AUTHOR: Závěta, K.

TITLE: Comments on the electrical conductivity of Mn-Zn  
ferrites

PERIODICAL: Referativnyy zhurnal, Elektrotehnika i energetika,  
no.10, 1962, 3, abstract 10 B16. (Czechosl. J. of  
Physics, B11, no.5, 1961, 376-378). (English)

TEXT: On eight Mn-Zn ferrite specimens the temperature  
dependences of  $\rho$  between 20 and 120 °C, and of the initial  
value of  $\mu$  were investigated. Some of the specimens displayed  
an anomaly in the dependence of  $\rho$  at  $\Theta$ : either a change in  
the inclination of the straight line  $\lg \rho$  (1/T) or its  
parallel displacement (without any change in the activation  
energy).

[Abstractor's note: Complete translation.]

Card 1/1

ZAVETA, K.; SVIRINA, Ye.; MALIKOVA, O.

Effect of thermal treatment on the electric properties of  
manganese ferrate single crystals. Fiz.tver.tela 4 no.12:  
3593-3595 D '62. (MIRA 15:12)

1. Moskovskiy gosudarstvennyy universitet im.M.V.Lomonosova.  
(Manganese ferrate crystals—Electric properties)  
(Metals, Effect of temperature on)

SIMSA, Z.; ZAVETA, K.

Note on the electric conductivity of ferrites at low temperatures. Chokhosl fiz zhurnal 13 no. 6: 471-473 '63.

1. Ustav fyziky pevných látek, Československá akademie věd, Praha.

L-34767-66

ACC NR: AP6026280

SOURCE CODE: CZ/0037/65/000/004/0340/0347

AUTHOR: Gorbos, Richard; Vilim, Frantisek; Zavota, Karel

ORG: Institute of Solid State Physics, CSAV, Prague (Ústav fyziky pevných látek CSAV)

TITLE: Low temperature measurements with a carbon thermometer

SOURCE: Coskoslovonsky casopis pro fysiku, no. 4, 1965, 340-347

TOPIC TAGS: thermometer, temperature measurement, carbon resistor

ABSTRACT: The paper discusses the choice of method for measuring temperatures in a range of roughly 2-90°K. The region of applicability and the accuracy in determination of the temperature with a carbon thermometer are found by evaluating the results of measurements of the temperature dependence of the carbon resistor. The authors thank Doctor A. Linek, UFPL, for help in preparing the program and for his advice with the calculations. Orig. art. has: 3 figures and 5 formulas. [Based on authors' Eng. abst.] [JPRS]

SUB CODE: 14, 09 / SUBM DATE: 12 Dec64 / SOV REF: 001 / OTH REF: 011

Card 1/1 1175

ACC NR: AP6010764

SOURCE CODE: GE/0030/66/014/001/00K9/OK13

AUTHOR: Zaveta, K.; Trinkler, E. I.; Zounova, F.

ORG: [ZAVETA; ZOUNOVA] Institute of Solid State Physics Czechoslovak Academy of Sciences, Prague; [TRINKLER] Institute of Physics, Academy of Sciences of the Latvian SSR, Riga

TITLE: Magnetic after-effect spectrum of Mn ferrites from 4.2 to 300K

SOURCE: Physica status solidi, v. 14, no. 1, 1966, K9-K13

TOPIC TAGS: magnetic effect, polycrystal, liquid helium, ferrite, manganese, manganese ferrite

ABSTRACT: The purpose of the present study is to extend the data on magnetic spectra obtained in earlier studies (S. Krupicka, Czech. J. Phys. B14, 29, 1964; A. Braginski and T. Merceron, Nature 191, 898, 1961; S. Krupicka and F. Vilim, Czech. J. Phys. 7, 723, 1957) to the temperature range 4.2 to 70K. In this study the measurements were made on toroidal polycrystalline samples with a mean diameter of 12 to 14 mm of the system  $Mn_xFe_{3-x}O_4$  (with  $x = 0.95, 1.06$  and  $1.17$ ). The complex permeability was measured by means of a resonance bridge at frequencies 75, 150, 300, and 600 kc. Disaccommodation measurements were made with the same bridge, and the results were checked at 75 and 150 kc. The cryostat employed was similar to that described by R. Gerber, F. Vilim, and K. Zaveta. [Cs. cas. fys. 15, 340, 1965]. The temperature of

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L 39808-66

ACC NR: AP6010764

the sample was determined by means of an Allan-Bradley graphite resistor in contact with the sample. This work is being continued, and a more detailed report will be published elsewhere. The authors thank Dr. S. Krupicka for his discussions and F. Vilim for his technical assistance. [NT]

SUB CODE: 20/ SUBM DATE: 12Jan66/ ORIG REF: 005/ OTH REF: 002/

Card 2/2 MLP



1 03780-66 T/EWP(t) IJP(c) JD  
 ACC NR: AP6012805 SOURCE CODE: GE/0030/66/014/002/0405/0430

1. Simza, Z.; Zaleski, A. V.; Zaveta, K.

2. Institute of State Physics, Zvezda, V.  
1966, 14, no. 2, 485-490

3. Properties of single crystals of hexagonal ferrites

4. Physica status solidi, 14, no. 2, 1966, 485-490

5. electric property, crystal, hexagonal ferrite,  
conductivity, temperature, thermoelectric measurement

6. Single crystals of hexagonal ferrite of composition  
W-structure, anisotropy of electrical

7. conductivity, temperature, thermoelectric measurement

8. between  $Fe^{2+}$  and  $Fe^{3+}$  ions, plays a prominent role in the conduction  
process. The possible origin of the anisotropy in conductivity is  
discussed in relation to specific features of the W-structure. The

Card 1/2



ZAVGORODNIY, A.F.

ZAVGORODNIY, A.F.; SEREDA, G.T.; BABENKO, G.N.

Heavy pinching in viticulture. Agrobiologia no. 4:154-156 J1-Lg '57.  
(MLRA 10:9)

1. Slavyanskiy sel'sko-khozyaystvennyy tekhnikum.  
(Viticulture)

ZAVGORODNIY, A. I.

Method of determining mean values from isotherm charts. Vest.  
AN Kazakh. SSR. 19 no.8:63-70 Ag '63. (MIRA 17:7)

26367

8/089/61/011/002/003/015  
B102/B201

21.1000

26.2240

AUTHORS: Klimenkov, V. I., Zavgorodniy, A. Ya.

TITLE: Energy stored in the graphite of an WP(IR) reactor

PERIODICAL: Atomnaya energiya, v. 11, no. 2, 1961, 126-132

TEXT: A study has been made of storage and distribution of latent energy in the graphite of an IR reactor. The investigation was conducted on samples from graphite blocks taken from the reactor during disassembling, and also on samples taken by a special drill in the course of two years after disassembling of the graphite assembly. During this time the reactor worked with a mean power of 50 Mw and with a graphite temperature in the center of the brick-work ranging between 400 and 600°C. The integral thermal neutron flux in the center was  $6.7 \cdot 10^{21}$  n/cm<sup>2</sup>. The samples extracted with a drill were cylindrical, 50 mm long, and 10 mm in diameter. The largest samples were 25 mm long and 28 mm in diameter. The characteristics of the liberation of latent energy were examined with the aid of a vacuum calorimeter by the method of two successive heat treatments with constant heat supply. The electric heater warranted a heating rate of 13°C/min

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26367

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B102/B201

X

Energy stored in the graphite ...

(without liberation of latent energy). The sample temperature was measured with thermocouples and recorded by an automatic potentiometer of the type ЭПП-09 (EPP-09); this device is able automatically to record a maximum rate of 150°C/sec. The latent energy was obtained by comparing the curves of two successive heatings of irradiated samples. Fig. 3 presents curves characterizing the liberation of latent energy:  $q = f(T)$ ,  $dq/dT = f(T)$ ;  $q = kW\Delta t/p$ , where  $W$  is the constant heating power,  $\Delta t$  is the duration of heating,  $p$  is the weight of the sample (in grams), and  $k$  is the equivalent of the calorimeter. The samples were heated in the vacuum calorimeters between 600 and 650°C. The error in the determination of the total latent energy was about 50 cal/g. The maximum energy liberated on heating to 600°C was 125 cal/g, and the total latent energy amounted up to 540 cal/g, which is in good agreement with data found earlier. For samples taken two years after disassembling (integral thermal neutron flux:  $\sim 3 \cdot 10^{20}$  n/cm<sup>2</sup>; temperature  $\sim 100^\circ\text{C}$ ), the total latent energy was found to be 320 cal/g. A new fact was that the rate of energy liberation rose strongly on heating to high temperatures (350-600°C and over). It was double the amount of specific heat of graphite. The distribution of latent energy had already been the subject of a report by B. V. Brokhovich at the Second Geneva Atomic

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S/089/61/011/002/003/015  
B102/B201

Energy stored in the graphite ...

Conference (1958). The observed drop of latent energy with growing graphite thickness is related to the variation of the neutron spectrum and of the graphite temperature. Results are in good agreement with those obtained by Dickson et al. A study of the hazard resulting from the liberation of latent energy showed values between 0.33 and 0.25 cal/g-deg for the mean rate of energy liberation with the maximum latent energy being taken to be 540 cal/g; this value is lower than the specific heat of graphite (0.36 cal/g). The spontaneous heating of graphite due to liberation of latent energy is a source of hazard for aluminum tubes and for the envelopes of uranium lumps. Investigation results showed, in agreement with those obtained on the BEPO reactor, that the conditions under which latent energy is liberated, are almost adiabatic. There are 4 figures and 9 references: 5 Soviet-bloc and 4 non-Soviet-bloc. The four references to English-language publications read as follows: Nucl. Engng. 2, No. 20, 453 (1957); Nucleonics, 15, No. 12, 43 (1957); Dickson et al., Paper No. 1805, Second Geneva Conference, 1958; Cottrell et al., Paper No. 2485, Second Geneva Conference, 1958.

SUBMITTED: February 20, 1961

Card 3/8

ZAVGORODNIY, B.

We will have the frame furnished by the opening of the Party Congress.  
Na stroi. Ros. no.7:15-16 J1 '61. (MIRA 14:8)

1. Glavnyy inzhener stroitel'no-montazhnogo upravleniya No.2  
tresta Gor'kovgesstroy No.6.  
(Gorkiy--Precast concrete construction)



24270, 11. 11. 11.

CZECHOSLOVAKIA/Physical Chemistry - Radiation Chemistry.

B-10

Photochemistry. Theory of the Photographic Process.

Abs Jour : Ref Zhur - Khimiya, No 8, 1958, 24270

Author : Zavetova Milena

Inst : -

Title : Concerning the Photoconductivity of Photographic Emulsions

Orig Pub : Coskoul. casop. fys., 1957, 7, No 3, 272-278; Chokhosl. fiz. zh., 1957, 7, No 3, 327-334

Abstract : Dark conductivity of the emulsion gel is ascribed to motion of inter-pointal  $Ag^+$  ions in AgBr crystals, and also of  $Ag^+$  ions weakly bound to the surface of crystals and passing therefore into the surrounding electrolyte. On illumination of gels a negative photo-effect is observed which is attributed to recombining of photoelectrons with the carriers of the current ( $Ag^+$ ) resulting in the formation of Ag atoms. In the dry layers there is observed a positive photo-effect which is attributed to

Card 1/2

ZAVETOVA, MILENA

CZECHOSLOVAKIA/Optics - Photography

K-13

Abs Jour : Ref Zhur - Fizika, No 6, 1958, No 14657

Author : Zavetova Milena

Inst : Not Given

Title : Concerning the Problem of the Influence of Aging on the Sensitivity and Fog of Photosensitive Emulsions.

Orig Pub : Cechosl. casop. fys., 1957, 7, No 4, 442-451

Abstract : See Abstract 14656.

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*Handwritten: 4-10-88, 11-10-88*  
CZECHOSLOVAKIA/Optics - Photography

K-13

Abstr Jour : Ref Zhur - Fizika, No 6, 1958, No 14656

Author : Zavetova Milena

Inst : Not Given

Title : Concerning the Problem of the Influence of Aging on the Sensitivity and Fog of Photosensitive Emulsions.

Orig Pub : Chekhosl. fiz. zh., 1957, 7, No 4, 506-508

Abstract : An investigation was made of the influence of aging at room temperatures and in a thermostatic oven (60°C, humidity 5%) on the sensitivity  $S$  and on the fog density  $D_0$  of photographic emulsions. Commercial emulsions have shown an increase in  $S$  at first, later on remaining constant.  $D_0$  did not change. However, these emulsions are not suitable for investigations owing to their low aging under room conditions, the influence of the stabilizer, and the absence of data on the behavior of the sensitizers at 60°C. For a Panchro-super emulsion without a stabilizer and sensitizer, the dependence of  $S$  on the exposure is expressed by a bell-shaped curve with a maximum

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CZECHOSLOVAKIA/Optics - Photography

K-13

Abs Jour : Ref Zhur - Fizika, No 6, 1958, No 14656

after  $t \sim 20$  to 25 hours. From this instant of time, there starts a sharp rise of  $D_0$ . For a pre-exposed emulsion,  $S$  also passes through a maximum at the same value of  $t$ , after which it drops sharply. The data obtained are interpreted as a continuation of the second maturation when maintained in a thermostatic oven. Data pertaining to the temperature of  $60^\circ\text{C}$  do not make it possible to predict the course of the aging under natural conditions. For the same emulsion, under room-temperature conditions,  $S$  decreased and  $D_0$  increased up to  $t \sim 5$  months, after which both quantities remained almost constant.

Card : 2/2

ZAVETOVA, M.

CZECHOSLOVAKIA/Optics - Physical Optics

K-5

Abs Jour : Ref Zhur - Fizika, No 4, 1959, No 6735

Author : Zavetova Milena

Inst : Czechoslovak Academy of Sciences, Prague, Czechoslovakia

Title : Interference of Two Natural Beams of Light, Passing Through  
an Optically Active Medium

Orig Pub : Chekhosl. fiz. zh., 1958, 8, No 2, 229-232, 266b

Abstract : The author has investigated experimentally the suggestion of Vavilov concerning the interference of two natural beams of light, passing through an optically active medium. The author has photographed the interference pattern from two round holes 0.1 mm in diameter, whose centers were 0.51 mm apart. The holes were illuminated with monochromatic light of wavelength 436 microns from a mercury lamp. Placed before the holes were plane-parallel plates with right-handed and left-handed quartz respectively, cut perpendicular to the optical axis of the crystal. As the angle between the planes of polarization of the two beams increases, the intensity

Card : 1/2

CZECHOSLOVAKIA/Optics - Physical Optics

K-5

Abs Jour : Ref Zhur - Fizika, No 4, 1959, No 6735

of the interference pattern diminishes, and at an angle of  $90^\circ$  the fringes disappear completely. -- Yu.M. Kutev

Card : 2/2

CZECHOSLOVAKIA/Optics - Physical Optics

K

Abs Jour : Ref Zhur Fizika, No 8, 1959, 18995

Author : Zavetova, Minena

Inst : -

Title : Interference of Two Beams of Natural Light, Passing Through Media That Rotate in Opposite Directions

Orig Pub : Ceskosl. casop. fys., 1958, 8, No 3, 312-314, 394a

Abstract : An experiment was performed to verify the Vavilov statement, that two coherent beams of natural light capable of interference will not interfere if one of them passes through an optically-active layer, which rotates the plane of polarization by  $90^\circ$ , and the other passes through a layer of inactive medium of equal optical thickness. The interference pattern of Young was observed in the experiment using monochromatic light from two apertures. In front of one of the apertures were placed several plates of right-hand rotation quartz and

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CZECHOSLOVAKIA/Optics - Physical Optics.

K

Abs Jour : Ref Zhur Fizika, No 8, 1959, 18995

in front of the other aperture the same number of plates of left-rotation quartz. Each plate has a thickness corresponding to a rotation of the plane of polarization by  $165^\circ$ . In accordance with Vavilov's statement, an attenuation of the interference fringes was observed when one or two (in which case the attenuation was even greater) plates were placed in front of each aperture, and the fringes disappeared completely if three plates were used. -- P.G. Kard

Card 2/2



CZECH/37-59-3-3/29

AUTHORS: Tauc, Jan and Závětová, Milena

TITLE: Photo-piezoelectric Effect in Semiconductors

PERIODICAL: Československý časopis pro fysiku, 1959, Nr 3, pp 241-245

ABSTRACT: The conditions for the occurrence of a photo-voltaic effect have recently been studied by the author, J. Tauc (Ref 1,8). A basic condition is some inhomogeneity in the semiconductor. In Ref 1, it has been shown that if the width of the forbidden band changes along the illuminated region from  $E_{Gb}$  to  $E_{Gc}$ , then an e.m.f. given by:

$$U = - \frac{1}{e} \Delta t_1 (E_{Gc} - E_{Gb}) \quad (1)$$

arises  $\Delta T_1 = \sigma_1/\sigma - \sigma_{10}/\sigma_0$  where  $\sigma$  is the total conductivity of the illuminated sample,  $\sigma_0$  the dark conductivity and  $\sigma_1$  and  $\sigma_{10}$  relate to the conductivities of the electrons in the conduction band. The width of the forbidden band in a semiconductor depends on pressure (W. Paul and D.M. Warschauer - Refs 2,3) and Price (Ref 4)

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CZECH/37-59-3-3/29

Photo-piezoelectric Effect in Semiconductors

has suggested that a photo-voltaic effect might be observed in an inhomogeneously stressed semiconductor. The measurements were carried out on single crystals of n-type germanium ( $\rho = 30 \Omega \text{cm}$  at room temperature), p-type germanium ( $\rho = 12 \Omega \text{cm}$ ) and on p-type silicon ( $\rho = 570 \Omega \text{cm}$ ). The samples were cut perpendicular to (111) and their dimensions were  $1 \times 1 \times 15 \text{ mm}$ . They were etched in  $\text{CP4}$ . The contacts were made with a gallium and zinc eutectic by a method worked out by Trousil. The illuminated area was  $0.2 \times 1 \text{ mm}$  and the sample could be moved along the light-spot. The pressure was applied by two edges. The sample was compressed between them and the force was measured. The maximum pressure that could be applied without mechanically damaging the samples was  $4\,000 \text{ kg/cm}^2$  and it acted on an area  $0.2 \times 1 \text{ mm}$ . Measurements were made either with chopped light and AC amplification or with constant illumination and a galvanometer.

Card2/4

CZECH/37-59-3-3/29

# Photo-piezoelectric Effect in Semiconductors

Because most samples showed a photo-e.m.f. even without pressure, this was first plotted as a function of the location of illumination. The same function was then plotted while pressure was applied to the sample. The photo-piezoelectric e.m.f. was the difference between the two curves. It is plotted, for a sample of p-type silicon, in Figure 2 as a function of position of illumination and in Figure 3 as a function of pressure. The sign of the e.m.f. follows from Eq (1) after inserting:

$$\Delta t_1 = \frac{1}{1 + \mu_1/\mu_2} \cdot \frac{\Delta \sigma}{\sigma}$$

for n-type semiconductors, or:

$$\Delta t_1 = \frac{1}{1 + \mu_2/\mu_1} \cdot \frac{\Delta \sigma}{\sigma}$$

Card3/4

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CZECH/37-59-3-3/29

Photo-piezoelectric Effect in Semiconductors

for P-type semiconductors.

Here  $\mu_1$  and  $\mu_2$  are the mobilities of electrons and holes, respectively, and  $\Delta\sigma$  is the change in conductivity due to illumination. Table 1 gives the sign of the e.m.f. for the illuminated end of the sample. This is in agreement with the measurements. The observed effect is of the order of magnitude that was expected theoretically. Eq (1) is proved in an appendix. There are 4 figures, 1 table and 10 references, of which 3 are Czech and 7 English.

ASSOCIATION: Ústav technické fyziky ČSAV, Praha (Institute of Technical Physics, Czechoslovak Ac.Sc., Prague)

Card 4/4 :



Distr: 4E1x(g)/4E2d(b) 2 cys<sup>1</sup>

Photopiezoelectric effect in semiconductors. Jan Tauc  
and Milena Závětová (Czechoslov. Acad. Sci., Prague).  
Czechoslov. J. Phys. 0, 573-7 (1959) (in English).—A new  
photovoltaic effect was observed which is caused by the  
nonhomogeneous distribution of pressure in a semiconductor.  
Its origin can be explained by considering the dependence of  
the energy gap on the pressure. A. Kreimheller

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4  
1-JRJ(MAY)  
1-XJP(S)  
3

ZAVETOVA, Milena (Praha)

Absorption edge of semiconductors. Pokroky mat fyz astr 8 no.3:131-144'63.

ZAVETOVA, M.

The refractive index of CdSb in the neighborhood of the absorption edge. Chekhosl fiz zhurnal 14 no.4:271-274 '64.

1. Institute of Solid State Physics, Czechoslovak Academy of Sciences, Prague 6, Cukrovarnicka 10.

SAVITSKYA, M.

Absorption edge of CdSb. Czechoslovak Journal of Physics 14, no. 2:615-622.  
1964

1. Institute of Solid State Physics, Czechoslovak Academy of  
Sciences, Prague 6, Sukrovarnicka 10.



61

The effect of soil moisture on sugar beet. F. I. (a)  
Kotodimil. Zhurnal Prirod. Nauch. Fakul. Khim. Prirod. Nauch. Fakul.  
M. Lyubimovskaya, Abad. Nauk U. R. S. R. Inst. Bot. i  
Kiev. 1938, 179-81; Herbage Abstracts 6, No. 2, Abstract  
No. 629(1939). The increase of moisture increased the  
yield of root, the sugar and lowered the N content.  
S. Yakovlevich

ASB SLA METALLURGICAL LITERATURE CLASSIFICATION

ZAVGOREINII, F. I.

Zavgoreiniy, F. I. - "The effect of potassium on the growth, yield and composition of the sugar beet," Nauch. Trudy (Akad. Nauk. SSR, Inst fiziologii i agrokimii), No. 1-2, 1948, pp. 105-25.- Bibliog: 25 items.

SO: U-3850, 16 June 53, (Letopis 'Zhurnal 'nykh Statey, No. 5, 1949).

ZAVGORODNIY, F.I. [Zavhorodnii, F.I.], kand. biolog. nauk

Effect of vitamin-enriched seeds on the formation of the wheat  
crop. Nauk. pratsi UASHN 17 no.12:19-29 '60. (MIRA 16:7)

(Wheat) (Vitamins)

ZAVGORODNIY, F.I.

"Manganese nutrition and fertilizing of plants" by P.A. Vlasuk.

Reviewed by F.I. Zavgorodni. Fiziol. rast. 10 no.6:732-734 N-D

'63.

(MIRA 17:1)

ZAVGORODNIY, G.S., inzh.; GOLUBEV, O.V., inzh.

Mechanization of dressing full-length logs. Mekh.i avtom.  
proizv. 16 no.10:18-21 0 '62. (MIRA 15:11)  
(Lumbering--Machinery)

ZAVGORODNIY, L. G. Cand Med Sci -- (diss) "Congenital diaphragmatic herniae.  
(Clinic, <sup>AA,</sup>diagnosis and therapy)." Stalino, 1957. 13 pp (Stalin<sup>O</sup>sky Med Inst  
im A. M. Gor'kiy), 200 copies (KL, 6-58, 103)

ZAVGORODNIY, L.G. (Stalino (Donbass), Prospekt Gurova, d. 8, kv. 20)

Penetration of gastric ulcer into the pericardium with strangulated  
sinistral traumatic diaphragmatic hernia. Nov.khir.arkh. no6:128-129  
N-D '58. (MIRA 12:3)

1. Kafedra fakul'tetskoy khirurgii (zav. - prof. K.T. Ovnatanyan)  
Stalinskogo meditsinskogo instituta.  
(PEPTIC ULCER)  
(DIAPHRAGM--HERNIA)

ZAVGORODNIY, L.G.

Restorative operation in avulsion of the skin of the external male genitalia. Urologiia 23 no.4:54-56 J1-Ag '58 (MIRA 11:8)

1. Iz fakultetskoj khirurgicheskoy kliniki (zav. - prof. K.T. Ovnatanyan) Stalinskogo meditsinskogo instituta im. A.M. Gor'kogo.  
(GENITALIA, MALE, wds. & inj.  
scalping trauma, plastic surg. (Rus))  
(PENIS, wds. & inj.  
skin avulsion, surg. (Rus))



ZAVGORODNIY, L.G.

Congenital diaphragmatic hernias in newborn infants. *Pediatrics* 37  
no.10:55-58 O '59. (MIRA 13:2)

1. Iz fakul'tetskoy khirurgicheskoy kliniki (zaveduyushchiy - prof.  
K.T. Ovnatanyan) Stalinskogo meditsinskogo instituta imeni A.M. Gor'-  
kogo (direktor - dotsent A.M. Ganichkin).

(INFANT NEWBORN dis.)

(HERNIA DIAPHRAGMATIC in inf. & child.)

ZAVGORODNIY, L.G., kand.med.nauk (Donetsk, pr. Gurova, d.8, kv.20)

Foreign body in the diaphragm. Klin.khir. no.6:73-74 Je '62.

(MIRA 16:5)

1. Fakul'tetskaya khirurgicheskaya klinika (zav. - prof. K.T. Ovnatanyan) Donetskogo meditsinskogo instituta na base Donetskoy oblastnoy klinicheskoy bol'nitsy.

(DIAHRAGM—FOREIGN BODIES)

ЗАВОРОДНИЙ, Л.С.

OVNATANYAN, K.T., professor (Donetsk, Pushkinskaya ul. d.129, kv.63);  
ZAVGORODNIY, L.S., dotsent

Surgical treatment of hernia and relaxation of the diaphragm.  
Vost.khir. 89 no.7:53-58 J1 '62. (MIRA 15:8)

1. Iz fakul'tetskoy khirurgicheskoy kliniki (zav. -- prof. K.T. Ovnatanyan) Donetskogo meditsinskogo instituta im. A.M. Gor'kogo (dir. -- dotsent A.M. Ganichkin).  
(DIAPHRAGM--HERNIA)

ZAVGORODNIY, L.G., dotsent

Diagnosis and surgical treatment of phrenic relaxation.

Khirurgiia 39 no.10:76-81 O '63.

(MIRA 17:9)

1. Iz fakul'tetskoy khirurgicheskoy kliniki (zav.- prof. K.T. Ovnatanyan) Donetskogo meditsinskogo instituta imeni A.M. Gor'kogo.

OVNATANYAN, K.T. (g. Donetsk (Donbas), ul. Pushkinskaya, d.129, kv.63);  
ZAVGORODNIY, L.G.; KRAVETS, V.M.

Tumors and cysts of the diaphragm. Grad. zhiv. 6 no.6:78-80  
H-D '64. (MIRA 18:7)

1. Fakul'tetskaya khirurgicheskaya klinika (zav. - prof. K.T.  
Ovnatanyan) Donetskogo meditsinskogo instituta imeni A.M.  
Gor'kogo.

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ZAVGORODNIY, M.M.

Scientific seminars on mechanics in the Academy of Sciences of the  
Ukrainian S.S.R. Visnyk AN URSS 26 no.1:58-59 Ja '55.  
(Mechanics) (MLRA 8:3)

ZAYGORODNIY, N.G.; FURMANSKIY, M.M.

Evaluation of various methods of therapy for lupus erythematosus  
planus. Vest. dermat. i ven. 34 no.4:61-62 '60. (MIRA 13:12)  
(LUPUS)



ZAVGORODNIY, N.P.

Supplementary oil control rings on pistons for C-80 tractor engines.  
Les.prom. 14 no.6:22 Js '54. (MLRA 7:6)  
(Tractors--Engines) (Pistons)

*ca*

Increasing the output of drying drums [in cement mills].  
N. S. Zaygorodniy. *Izvestiya* 10, No. 8/9, 9-10(1944).  
The output of drying drums and the quality of the product  
(chalk, marl, coal, etc.) are greatly impaired by the variation  
in size of the feed, ranging from dust to 30-70 mm.  
Z. suggests placing 20-30 steel or iron balls 200-75 mm. in  
diam. inside the drum. To prevent their motion along  
the length of the tube a partition is built in. A drawing  
is given. M. Hloch

20

ZAVGORODNIY, N.S.; SIDOCHENKO, I.M.

New method of preparing mixtures of raw materials for burning  
in automatic shaft kilns. TSement 24 no.5:25-26 S-0 '58.  
(MIRA 11:11)

1. Amvrosiyevskiy tsementnyy zavod.  
(Cement kilns)

VAL'BERG, G.S., ZAVGORODEIY, M.S., KOGAN, M.P., SIDOCHENKO, I.M.,  
SHVYDKIY, M.Ya.

Enriching air with oxygen in burning clinker in shaft  
kilns. TSement 26 no.3:3-8 My-Je '60. (MIRA 13:7)  
(Clinker brick)